

R/010/60/011/011/001  
A231/A126

AUTHOR: Voronca, A., Engineer

TITLE: The application stage of geophysical methods in drilling holes for the exploration and determination of the reserves of coal deposits in the USSR

PERIODICAL: Revista Minelor, v. 11, no. 11, 1960, 501 - 506

TEXT: The USSR widely uses the geophysical sampling for the exploration of coal deposits, performing yearly more than 3.1 million geophysical samplings. The drilled holes are examined by electric and radioactive sampling and many samples are extracted by the sidewall sampler for the determination of the stratigraphical columns and detection of coal. The used electric sampling methods are: apparent resistivity (KS), self-potential (PS), gradient of self-potential, produced potential (VP), bridge resistance (MC), electric currents (TK), and sliding contacts (MSC). The radioactive sampling methods are: natural gamma (GC), neutron-gamma (NGC) and gamma-gamma (GGC). The soil samples are taken with the sidewall sampler, which extracts 20 samples in one operation. The volume of a sample varies between 1 - 5 cu cm. Geophysical research conducted at a scale of 1 : 200

Card 1/6

R/010/60/011/011/001/001

A231/A126

The application stage of geophysical methods ...

serves for the detection of coal, completion of the stratigraphical columns and lithological horizonting of the profile. Geophysical research conducted at a scale of 1 : 50 serves for the determination of thickness and structure of coal strata. Electric sampling methods are used for the study of coal deposits in which the electric parameters of the coal are clearly distinguished from that of the other rocks, or rocks of similar parameters, but of non-important quantity. The detection of coal is accomplished by the KS and TK methods, and for details the VP and PS methods are used. An accurate quantitative interpretation is accomplished by the PS gradient method. Coals of high resistivity, i.e., the majority of the deposits of Donbas, Kuzbas, Pechora Basin, Karaganda, Lvov-Volyn, Sakhalin Island, etc., as well as the anthracite coal deposit of the Donets Basin are detected by these methods. The radioactive methods combined with electric methods are used for the detection of mineral coal and lignite deposits with a high electric resistivity, and lignite deposits with a high content of ash. The used radioactive methods are GC, NGC and GGC. The latter method was introduced by the USSR in 1955, supplying at present the best results in the detection of the coals in drilling holes. For details, the radioactive methods are completed by KS and PS electric measuring, rarely by TK and gradient PS methods. The coal deposits of Kizelo and Chelyabinsk, as well as some deposits of the Moscow basin are examined by radio-

Card 2/6

R/010/60/011/011/001/001  
A231/A126

The application stage of geophysical methods...

active methods whereas the coal deposits of the Western Urals, some sections of the Donets and Moscow basins and of the Tomi-Usinsk Region in Kuzbas are detected by the combined method. The use of a complex geophysical process expanded by the sidewall sampling method, guarantees the identification of the coal strata, determination of their thickness, structure and depth. Correlation profiles constructed on the bases of geophysical diagrams also permit in many cases the determination of tectonic disturbances, their character and the synchymization of the coal strata. The comparing studies proved that the geophysical sampling for the determination of thickness, structure and location depth is more accurate than the mechanic sampling. In coal basins where the use of geophysical methods is more advanced, the qualitative determination of the coals by geophysical methods is at least as accurate as the determination by mining work. In the USSR, the evaluation of the thickness of the coal strata is estimated with an average error of minus 18% to the real thickness. In some deposits these subestimations range up to 55% (Pechora Basin). In some coal basins (Pechora, Southern Yakutia and Kusnetsk), the coal reserves are calculated only on the basis of results supplied by the geophysical sampling. Based on the practical importance of the geophysical sampling, the State Commission of Reserves of the USSR has established: "Utilization Conditions of geophysical sampling data for the calculation of coal reserves".

Card 3/6

R/010/60/011/011/001/001  
A231/A126

The application stage of geophysical methods ...

The State Commission determines that in case the geophysical sampling fulfills the respective conditions, it should be considered as a basic method for the determination of the necessary indexes for the calculation of the coal reserves. With regard to the importance and accuracy, the investigation of coal deposits by geophysical methods in the USSR presents three categories: 1 - Deposits where the use of geophysical methods is more advanced, obtaining by them: a) detection of thickness, structure and location depth of coal strata; and b) qualitative parameters of the coals. 2 - Deposits where the use of geophysical methods supplies with accuracy: a) detection of the thickness structure and location depth of coal deposits; and b) quality parameters; they are obtained by analyzing the samples taken with the sidewall sampler; 3 - Deposits where the use of geophysical methods is not sufficiently developed and no accurate data on the detection of thickness, structure and depth of strata can be given. But also in this situation, every drilling hole is geophysically sampled. The results obtained according to point 1 and 2, serve for the calculation of the coal reserves. On the basis of the results obtained, a method for the application of data supplied by geophysical sampling for the calculation of coal reserves has been worked out. In September 1958, M. S. Speranskiy forwarded to the Coal and Bituminous Slate Section of the Commission of Geological Experts at the State Commission of Reserves, his report: "Position of Geological Experts at the State Commission of Reserves, his report: "Pos-

Card 4/6

R/010/60/011/011/001/001

A231/A126

The application stage of geophysical methods ...

sibilities and Conditions for the Use of Geophysical Sampling Data in the Calculation of Explored Coal Reserves". On the basis of this report, the State Commission of Reserves worked out and approved on November 15, 1958: "Application Conditions of Geophysical Sampling Data in the Calculation of Coal Reserves". The standards include the use of geophysical sampling procedures and the qualities which have to be fulfilled, as follows: The geophysical sampling is a basic method for the determination of some of the quantitative parameters of the coal in beds where the geophysical method proved to be equal, or superior to the mechanical sampling. In certain conditions it permits the identification of the presence of coal strata and the determination of the thickness, structure and location depth. The application degree of the data is determined by the particularities of the physical properties of the coals and rocks in their beddings and roofings; by the indices characterizing the thickness, structure and qualities of the coal; and by the accuracy of the results obtained by geophysical sampling. The degree of accuracy is determined by comparative studies between the results of the geophysical and mechanical samplings and of the mining works. The obligatory conditions for the use of data obtained by geophysical measurements on thickness, structure and "batimetry" of the strata are described. The advantages of the geophysical sampling against the mechanical sampling are: reduction of the costs by 30 - 50% per linear meter; doubling of the drilling speed; high

Card 5/6

The application stage of geophysical methods ...

R/010/60/011/011/001/001  
A231/A126

geological results and complete stratigraphic columns; more simple examination of the geophysical graphs. On the basis of the Soviet results, the author recommends the intensification of the application of geophysical methods in Rumania: Exchange of experience with the USSR and other socialist countries should be carried out. There are 2 tables and 6 Soviet-bloc references.

Card 6/6

VORONCA, A.

Application of geophysical measurements in wells for coal-prospecting purposes. p. 63.

REVISTA MINELOR. (Ministerul Minelor, Ministerul Industriei Petrolului si Chimiei, Directia Exploatarilor Miniere si Asociatia Stiintifica a Inginerilor si Tehnicienilor din România) Bucuresti, Romania. Vol. 10, no. 2, Feb. 1959.

Monthly List of East European Accessions (EEAI) IC, Vol. 8, no. 7, July 1959

Uncl.

VORONCA, A.

Results obtained in the exploration of coal deposit by means of boring with the application of geophysical methods. p. 403.

REVISTA MINELOR. (Ministerul Minelor, Ministerul Industriei Petrolului si Chimiei, Directia Exploatarilor Miniere si Asociatia Stiintifica a Inginerilor si Tehnicienilor din Romania) Bucuresti, Rumania. Vol. 10, no. 10, Oct. 1959

Monthly list of East European Accessions (EEAI) LC Vol. 9, no. 2, Feb. 1960

Uncl.

VORONCA, A., CONSTANTINESCU, M.

Character of the slide prism under conditions of the space problem, when narrow faces are subjected to earth pressure. p. 205

REVISTA CONSTRUCTIILOR SI A MATERIALELOR DE CONSTRUCTII. (Asociatia Stintifica a Inginerilor si Tehnicienilor din Romania si Ministerul Constructiilor si al Materialelor de Constructii) Bucuresti, Romania. Vol. 10, No. 4, April 1958

Monthly List of East European Accessions (EEAI) LC, Vol. 9, No. 2, Feb. 1960  
Uncl.

VURONICA, A.

IA 21T26

RUMANIA/Engineering

Petroleum - Well Drilling  
Petroleum Industry

Jan/Feb 1974

"Prospecting the Aninosa-Satenei-Ungureni Structure by  
Means of Prahova Borehole No 501," A. Voronca, 5 pp

"Monitorul Petrolului Roman" Vol XLVIII, No 1/2

Existence of a petroleum-bearing structure confirmed;  
second boring is in progress at the intersection of  
the Targoviste-Doicesti routes. Technical data on the  
boring and yield; geologic profile sketched;  
laboratory analysis of Miocene gas.

21T26

VORONCA, Al., ing.; ANTONIER, M., ing.

Analysis of the electric power spectrum of gamma radiation  
brought forth in wells. Rev min 12 no.6:276-279 Je '61.

VORONCHEKHO, A.N., inzhener.

Installing fireproof partitions in cable tunnels of operating  
electric power plants. Elek.sta. 25 no.8:50-51 Ag '54. (MLRA 7:9)  
(Electric power plants--Fires and fire prevention)

BRODSKIY, V.B.; BELITSKIY, B.M.; VORONCHEV, A.T.; KONYAKHIN, N.V.;  
STAROSTIN, Yu.N.

Radio sounding of a plasma moving inversely to the electrodynamic  
acceleration in a coaxial accelerator. Zhur. tekh. fiz. 33  
no.4:426-428 Ap '63. (MIRA 16:9)  
(Oscillography) (Plasma (Ionized gases))

VUBONCHEV, Tikhon Aleksandrovich; IVANUSHKO, N.D., red.; SVESENNIKOV, A.A.,  
tekhn.red.

[Impulse thyratrons] Impul'snye tiratryny. Moskva, Izv-vo  
"Sovetskoe radio," 1958. 163 p.  
(Thyratrons) (MIRA 11:4)

PHASE I BOOK EXPLOITATION

593

Voronchev, Tikhon Aleksandrovich

Impul'snyye tiratryony (Pulse Thyratrons) Moscow, Izd-vo "Sovetskoye radio",  
1958. 163 p. Number of copies printed not given.

Ed.: Ivamishko, N. D.; Tech. Ed.: Sveshnikov, A. A.

PURPOSE: This monograph is addressed to those engaged in the design of various installations in which pulse thyratrons are used, as well as to designers engaged in the development of pulse equipment.

COVERAGE: The monograph is concerned with the design and operating specifications of pulse thyratrons. The book contains data on research done on various physical processes and can be divided into three sections: 1) physical processes taking place in the thyratron during the preconduction part of the period; 2) physical processes taking place during the conduction part of the period; 3) physical processes taking place during the postconduction period. Some special problems associated with thyratron operation are discussed as well as pulse-thyratron manufacturing technique. The present work also deals with the results of research on the physical  
Card 1/5

## Pulse Thyratrons

593

processes taking place in thyratrons, obtained in development of the 1950 model TGII-130/10 high-frequency pulse thyratron. This thyratron has a new firing system which ensures high firing stability, short charge-buildup time, and operates at a pulse repetition rate of up to 30,000 cps. The following Soviet-produced equipment is discussed: the TGII-35/3, TGII-50/5 and TGII-130/10 thyratrons and the TGII-3/1 pulse thyratron all of them developed by the author; the type 25-I single beam oscilloscope; the THI-2 thyratron, mentioned as the first pulse thyratron to be developed in the Soviet Union; the TGII-260/12 thyratron; the TGI-0.3/12 thyratron (filled with krypton); and the TGZ-0.1/1.3 thyratron. Some of these thyratrons are enumerated in a table with additional variants of the TGII type. The author expresses thanks to Professor I. L. Kaganov for the supervision of the work, to Ya. S. Itsokhi, Doctor of Technical Sciences for valuable suggestions in reviewing the manuscript, and to Engineers M. V. Dmitriyeva and L. I. Freydberg for their help. There are 23 Soviet references (including 1 translation), 1 German, and 12 English.

Card 2/5

## Pulse Thyratrons

593

TABLE OF  
CONTENTS:

## Preface

3

## Ch. I. General Introduction to Pulse Thyratrons

1.1. Design and some characteristics of pulse thyratrons	7
1.2. Operating principle and operating characteristics of pulse thyratrons	10
1.3. Technical requirements of pulse thyratrons and some of their parameters	19

## Ch. II. Physical Phenomena in Pulse Thyratrons in the Pre-conduction Part of the Period

2.1. Basic concepts of the theory of discharge buildup in hot-cathode ionic instruments	24
2.2. Experimental research on discharge buildup in pulse thyratrons	32

Card 3/5

Pulse Thyratrons

593

A. Process of discharge buildup	33
B. Firing stability	58
C. Increasing firing stability	62

Ch. III. Physical Phenomena in Pulse Thyratrons in the Conduction Part of the Period

3.1. Pulse voltage drop and volt-ampere characteristic	64
3.2. Oxide-cathode sparking	84
3.3. Voltage drop in electric discharge narrowings and arc gap	92

Ch. IV. Physical Phenomena in Pulse Thyratrons in the Post-discharge Part of the Period

4.1. Deionization process and parameters denoting the frequency characteristics of pulse thyratrons	98
4.2. Conditions giving rise to secondary firings and the effect of grid circuit parameters on frequency characteristics of pulse thyratrons	104

Card 4/5

VORONCHEV, TIKHON ALEKSEEVICH

N/5  
652  
• V5

Impul'syye Tiratryny Impulse,  
Thyratrons Moskva, "Sovetskoye Radio",  
1958

163 p., Diagrs. Graphs  
"Literatura" : p. 162-163

GREVENSCHIKOV, D.; VORONCHIKHIN, D.A., gvardii polkovnik, redaktor;  
CHECHIKOV, G.V., redaktor; MASHNIKOVA, T.F., tekhnicheskiy redaktor.

[Cunning and resourcefulness in warfare] Voennaya khitrost' i  
smetka. 3-e izd.-Moskva, Voen.izd-vo Ministerstva oborony SSSR  
1955. 66 p. [Microfilm]  
(Tactics) (MLRA 8:10)

KURBET'YEV, G.N.; KONOVALOV, M.I.; VORONCHIKIN, G.A.

The performance of flotation machines. TSvet. met. 38 no. 12:  
23-24 D '65 (MIRA 19±1)

KURBET'YEV, G.N.; KONOVALOV, M.I.; VORONCHIKHIN, G.A.; BURDA, S.L.

Industrial testing of sodium cyanide as a substitute for black  
cyanide. TSvet. met. 38 no.9:25-26 S '65.

(MIRA 13:12)

VORONCHIKHIN, Gennadiy Ivanovich; KONDRAT'YEV, Konstantin Pavlovich;  
OGLOBLIN, L.A., red.; MOSHAROVA, T.P., red. izd-va; TIKHONOV,  
Ye.A., tekhn. red.

[Driver of lift trucks] Voditel' pogruzchikov. Moskva, Izd-  
vo "Morskoi transport," 1963. 183 p. (MIRA 16:7)  
(Fork lift trucks)

KOLOS, N.D., inzh.; VORONCHIKHIN, G.P., inzh.

Simple method for preparing metal surfaces for painting.  
Mashinostroenie no.1:76-78 Ja-F '65.

(MIRA 12:4)

MENKOVÁ, IRENE MARY,

Improvement of the methodology of preparing polybutene-1 by R. S. Borch, J. P. Poirier, K. W. H. Ho, J. G. B. L. D. T. and J. C. B.

16. Finans Leningradskogo gosprom. Trudovogo kraevedcheskogo kraevedcheskogo instituta po sel'skoy zemlye (21.000 rub.).

L 14991-66 EWT(l)/EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(e)/EWP(b) IJP(c) MJW/JD  
ACC NR: AP5028570 (N) SOURCE CODE: UU/0126/65/020/005/0793/0795

AUTHOR: Voronchikhin, L. D.; Zavadskiy, E. A.; Fakidov, I. G.

ORG: Institute of Physics of Metals AN SSSR (Institut fiziki metallov AN SSSR)

TITLE: Superparamagnetism in austenitic steels

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 5, 1965, 793-795

TOPIC TAGS: austenitic steel, paramagnetism, magnetization, magnetic field, magnetic moment, metal physical property, metal physics

ABSTRACT: Superparamagnetism was studied in 40Kh2N20 and 50Kh2N22 austenitic steels in order to determine the average magnetic moments and dimensions of the local ferromagnetic ordering regions (clusters). Magnetization curves are given both for constant magnetic fields and strongly changing ones. Sample dimensions were 1 mm (diameter) and 10 mm (length). The data showed that the experimental portions of the magnetization curves, corresponding to the values of the fields causing martensitic transformation in these steels, can be described by the Langevin function

UDC: 669.15 : 538.22

Card 1/3

L 14991-66

ACC NR: AP5028570

$$\frac{T}{I_s} = \frac{\sigma}{\sigma_0} = L \left( \frac{MH}{kT} \right), \quad (1)$$

where  $k$  is Boltzman's constant,  $T$  is the absolute temperature,  $M$  is magnetic moment of the superparamagnetic particle and  $I_s$  is saturation magnetization of the sample. Satisfactory agreement of the experimental and calculated curves exhibit the utility of equation (1) for calculating the magnetic moments of particles. Two boundary cases were considered, corresponding to the conditions when  $MH/kT \ll 1$  (weak field) and  $MH/kT \gg 1$  (strong field). Equation (1) for the case when  $MH/kT \ll 1$  reduces to

$$T = \frac{NM^2}{3k} \frac{H}{T},$$

where  $N$  is the number of particles per  $\text{cm}^3$ ; for the case when  $MH/kT \gg 1$ , the following was applicable:

$$\frac{T}{I_s} = \frac{\sigma}{\sigma_0} = 1 - \frac{kT}{M \cdot H}.$$

Card 2/3

L 14991-66

ACC NR: AP5028570

The average dimensions of the particles were calculated to be  $d = 10$  angstrom. The conclusions substantiated the authors' hypothesis of the presence of paramagnetism in austenitic steels based on the calculated magnetic moments and the impossibility of attaining saturation even in fields as high as  $150 \cdot 10^3$  oersted. (orig. art.)

SUB CODE: 11,20/ SUBM DATE: 30Jul65/ ORIG REF: 002/ OTH REF: 002

OC  
Card 3/3

L 31464-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD  
ACC NR: AP6023111

SOURCE CODE: UR/0126/66/021/003/0436/0441

AUTHOR: Voronchikhin, L. D.; Fakidov, I. G.

79

B

ORG: Institute of Physics of Metals, AN SSSR (Institut fiziki metallov, AN SSSR)

TITLE: Determining the latent heat of martensite conversion induced in steel by a magnetic field

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 3, 1966, 436-441

TOPIC TAGS: magnetic effect, martensitic transformation, constant magnetic field, pulsed magnetic field, calorimetry, nickel steel, high temperature phenomenon

ABSTRACT: The authors study the thermal phenomena which accompany martensite conversion induced by a magnetic field in steels. The study confirms the previously known fact of stepwise formation of isolated martensite bodies and indicates that a similar mechanism of martensite conversion takes place regardless of the physical causes underlying the  $\gamma \rightarrow \alpha$  conversion. A method is proposed for determining the latent heat of martensite conversion due to the effect of the magnetic field in 40Kh2N20 and 58Kh4N8S3M steels. The chemical composition of these steels is given in the table below. It is shown that both pulsed and constant magnetic fields may initiate this conversion. The advantages of the proposed method for determining the latent heat of austenite-to-martensite conversion in a magnetic field are discussed in comparison with the calorimetric method.

Card 1/2

UDC: 548.53;538.65

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ACC NR: AP6023111

Steel	C	Mn	Si	Cr	Ni	No
40Kh2N20	0.39	0.64	0.7	1.96	19.75	--
58Kh4N853M	0.58	—	3.2	4	8.5	1.1

Orig. art. has: 1 figure and 2 tables. [JPRS]

SUB CODE: 11, 20 / SUBM DATE: 27Mar65 / ORIG REF: 004

Card 2/2 M

ACCESSION NR: A75015527

AUTHOR: Pakidov, S. N., Levashov, Yu. V., Shchegolev, V. G.

field - magnetization of austenitic steel in a strong pulsed magnetic

SOURCE: Fizika metallov i metallovedeniye, v. 16, n. 4, p. 65-69, 1977

TOPIC-TACS: austenitic steel, martensitic transformation, magnetic phenomena, metal physics, thermodynamic analysis, low temperature phenomena

ABSTRACT: Magnetization of austenitic steels 18N22CrMo2 and 4Kh2N20 was studied. The martensitic transformation took place under the action of a strong magnetic field. The dependence of magnetization of the sample on the value of the total field  $H$ , frequency  $f$ , and temperature  $T$  was determined. The critical field  $H_c$  was given by  $H_c = 55 + 5f^{1/2}$ , and the validity of the relation  $\partial M/\partial H \propto (S_2 - S_1)^{1/2}$  was established, where  $M$  - magnetization of the sample,  $S_1$  and  $S_2$  -

Card 1/2

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ACCESSION NR: AP5016527

values of the entropy of both  $\alpha$  and  $\gamma$  phases. The part corresponding to the transformation caused by the strong magnetic field did not proceed at one definite field, but in a series of jumps, from which the first (at  $H_{cM}$ ) appeared the greatest. The critical field  $H_c$ , at which the most intensive martensitic burst started, depended weakly on the duration of the magnetic impulse. Critical field dependency on temperature was in accord with the thermodynamic theory of phase transformation of the first order.

Fig. 1: 7 figures.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physics of Metals AN SSSR)

SUBMITTED: 24Jul64

ENCL: 0 P

SUB. DATE: 17 Jul 64

NO. REF. Sov: 003

OTHER: 004

40

Card 2/2

VORONCHIKHIN, M.A., starshiy prepodavatel'

Undercutting cogs of a worm-gear wheel. Trudy DVPI 56 no. 1:17-26  
'62. (MIRA 17:6)

VORONCHIKHIN, S. I., prof.

Role of bone perforation in the treatment of hematogenic osteomyelitis. Khirurgia 38 no.5:38-43 My '62. (MIRA 15:6)

1. Iz kafedry fakul'tetskoy khirurgii (zav. - prof. S. I. Voronchikhin) Izhevskogo meditsinskogo instituta.

(OSTEOMYELITIS) (OSTEOTOMY)

VORONCHIKHEN, S. I.

Voronchikhen, S. I. -"On various cardiac bodies", Trudy Medinstituta (Izhev. gos. med. in-t), Vol. VI, 1948, p. 95-102.

SO: U-4110, 17 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 19, 1949).

VORONCHIKHIN, S.I.

Voronchikhin, S. I. "On regastroenterostomy," Trudy Medinstituta  
(Izhev, gos. med. in-t(. Vol. VII, 1949, p. 294-96

SO: U-3850, 16 June 53, (Letopis, 'Zhurnal 'nykh Statey, No. 5, 1949)

Vorónchikhin, S. I.

Voróńchikhin, S. I. "On the amputation of the femur according to  
Gritti-Stoks," Izd. Medinstituta (Izhev. gos. med. in-t),  
Vol. VII, 1949, p. 196-08

SO: U-3850, 16 June 53, (Letpis 'Zurnal 'nykh Statey, No. 5, 1949)

VORONCHIKHIN, S.I., prof.

Nikolai Ivanovich Pirogov, the creator of the scientific principles  
of surgery. Trudy Izhev.gos.med.inst. 13:3-25 '51. (MIRA 13:2)  
(PIROGOV, NIKOLAI IVANOVICH, 1810-1881)

VORONCHIKHIN, S.I., prof.

Technic of forming Pavlov's pouch. Trudy Izhev.gos.med.inst. 13:548-  
552 '51. (MIRA 13:2)

1. Zaveduyushchiy knafedroy topograficheskoy anatomii s operativnoy  
khirurgiyey Izhevskogo medinstituta.  
(LABORATORY ANIMALS) (STOMACH--SURGERY)

WORONCHIKHIN, V.A.

Change in the blood picture following csteoperforation in  
hematogenic osteomyelitis. Trudy Izhev.gos.med.inst. 21:  
199-202 '64.

(MIRA 1961)

1. Kafedra obshchey khirurgii (zav. - prof.N.F.Rupasov)  
Izhevskogo meditsinskogo instituta.

VORONCHIKHIN, V. E.

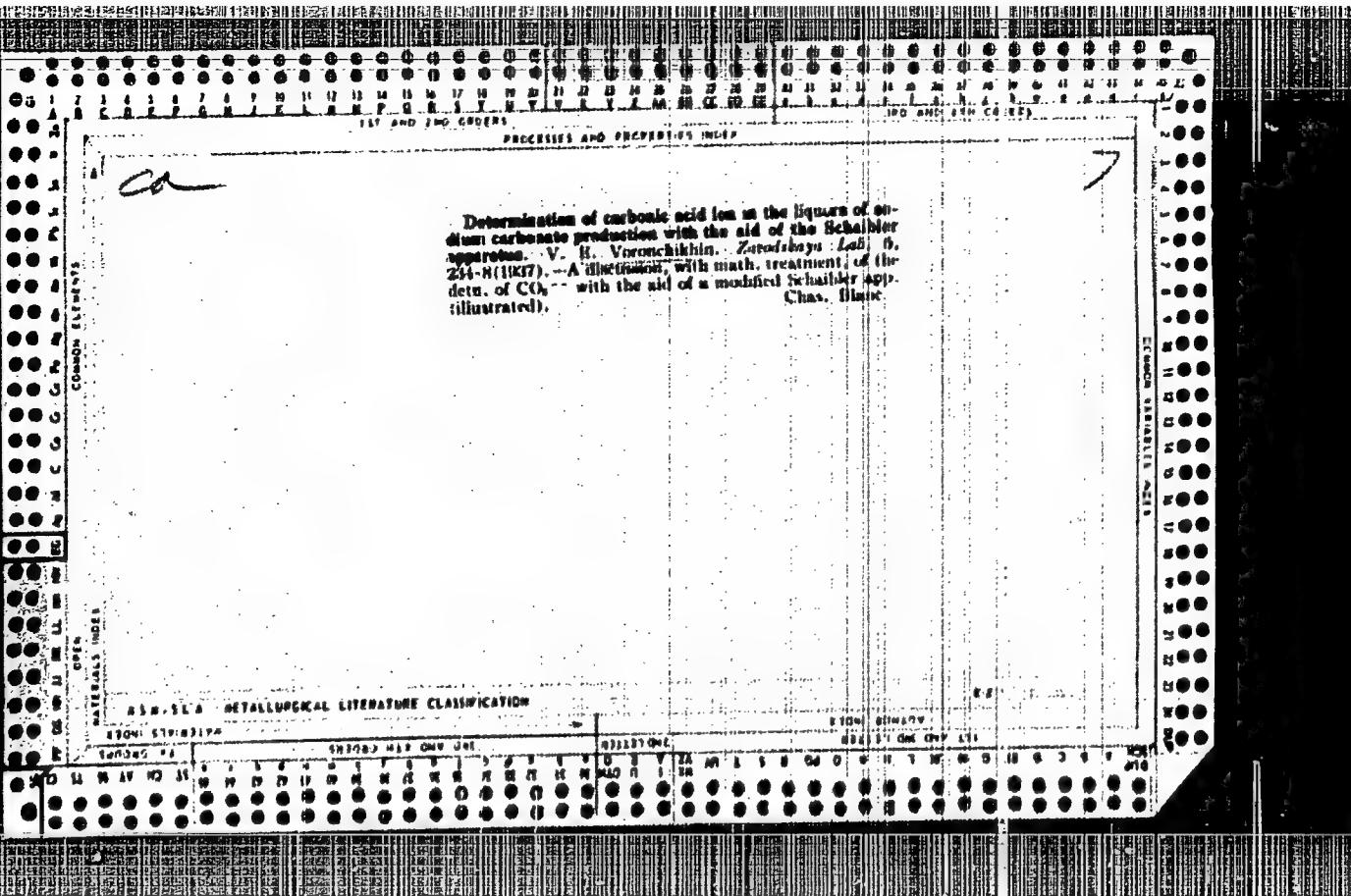
RT-1630 (On the composition of the deposits precipitating in soda production apparatus, and on measures for combating them) O sostave osadkov, otlagayushchikhsia v apparature sodovogo proizvodstva, i o merakh bor'by s nimi.  
ZHURNAL KHMICHESKOI PROMYSHLENNOSTI, 13(24): 1486-1489, 1936

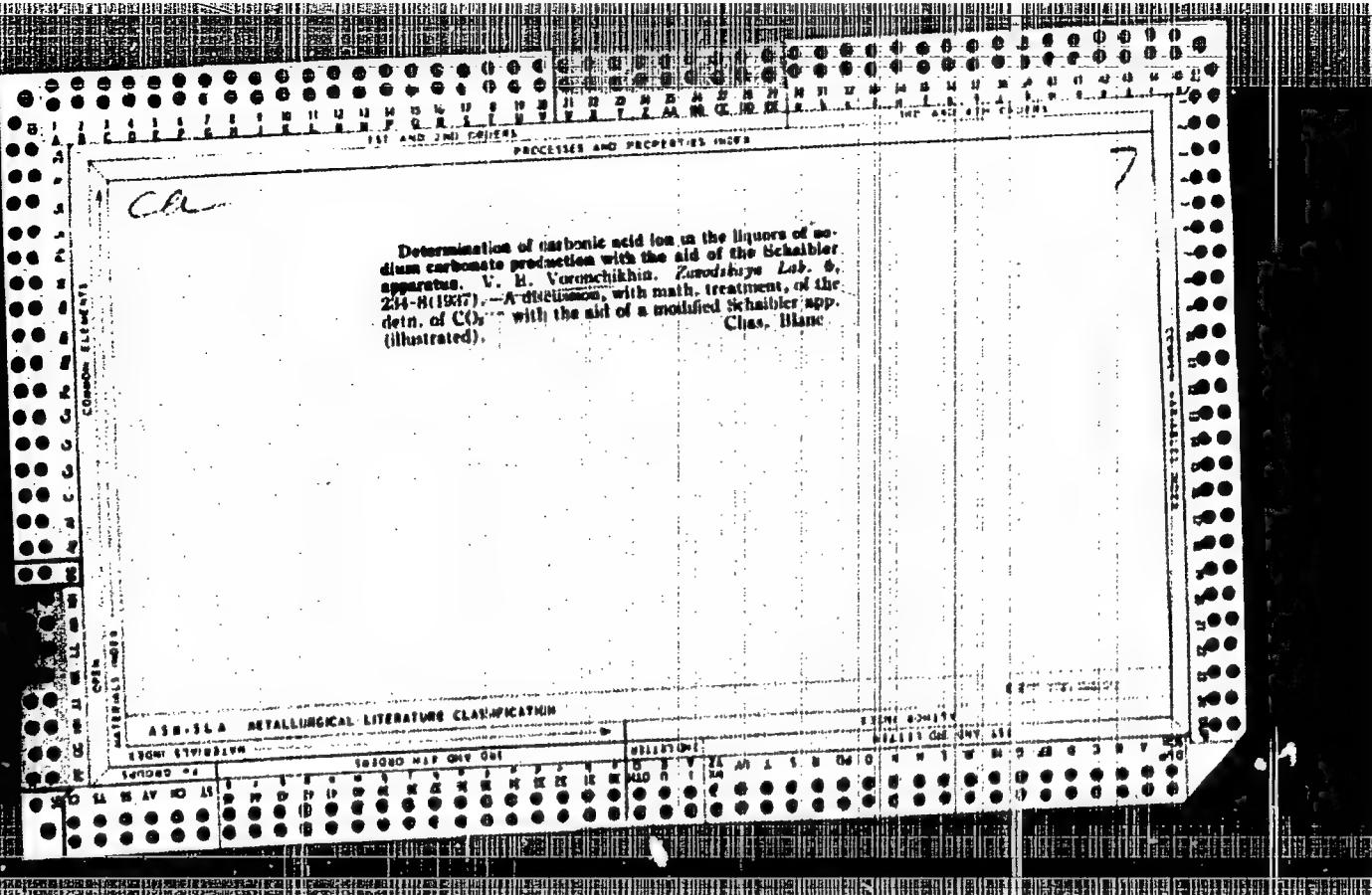
MAZUNIN, N., mayor; VORONCHIKHIN, D., gvardii podpolkovnik, redaktor;  
MOISENYENKO, D.G., tekhnicheskij redaktor

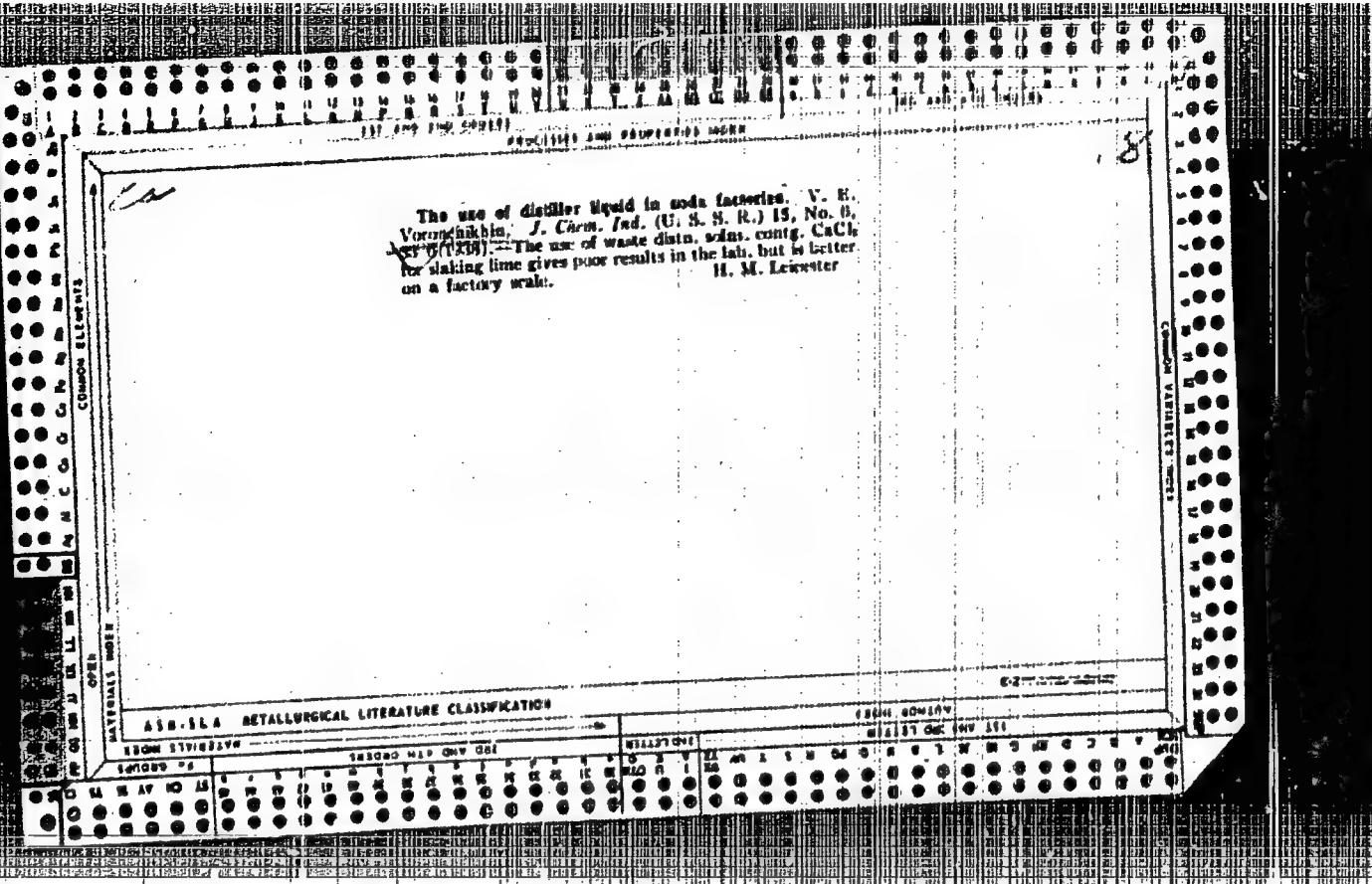
[The Volga flotilla in the Great Patriotic War] Volzhskaja voennaia  
flotilija v Velikoi Otechestvennoi voine. Moskva, Voen. izd-vo  
Ministerstva vooruzhennykh sil SSSR, 1947. 39 p. [Microfilm]

(MIRA 9:10)

1. Russia (1923- U.S.S.R.) Armiya. Upravleniye Morskikh Sil.  
Politicheskoye upravleniye.  
(Volga River--World War, 1939-1945--Naval operations)







CA

18

The composition of the precipitate deposited in soda-  
production apparatus and measures for avoiding it. II.  
V. E. Voronchikhin. J. Chem. Ind. (U.S.S.R.) 19,  
No. 8, 17-21 (1937); U. S. A. 31, 2304. — The deposit in  
various parts of the app. consists of varying proportions of  
 $\text{CaCO}_3$  and  $\text{MgCO}_3$ , mixed with  $\text{NaCl}$  and  $\text{Na}_2\text{CO}_3$  or  $\text{Na}-$   
 $\text{HCO}_3$ . Fine crystals of  $\text{Ca}(\text{OH})_2$  do not tend to accumulate  
incrustations. Therefore, the liquid should be covered at  
all times. Mg compds. cause incrustations most actively,  
and Mg should be removed as completely as possible.  
Pptd.  $\text{Mg}(\text{OH})_2$  is as bad as sol. Mg salts if it is allowed to  
circulate with the brine, since it redissolves and ppts. as  
 $\text{MgCO}_3$ . H. M. Leicester

## ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

The purification of brines for ammonia-nitrate production.  
V. N. Yermakova. J. Chem. Ind. (U. S. S. R.) 19,  
• 325-331 (1961). The relative advantages of precip. of  
Mg by NaOH, Ca(OH)<sub>2</sub>, Ca(OH)<sub>2</sub>-Na<sub>2</sub>CO<sub>3</sub> and Mg(OH)<sub>2</sub>-  
NaHCO<sub>3</sub> are discussed. J. M. Lekivisov

APPENDIX METALLURGICAL LITERATURE CLASSIFICATION

STANDARD SUBJECTS

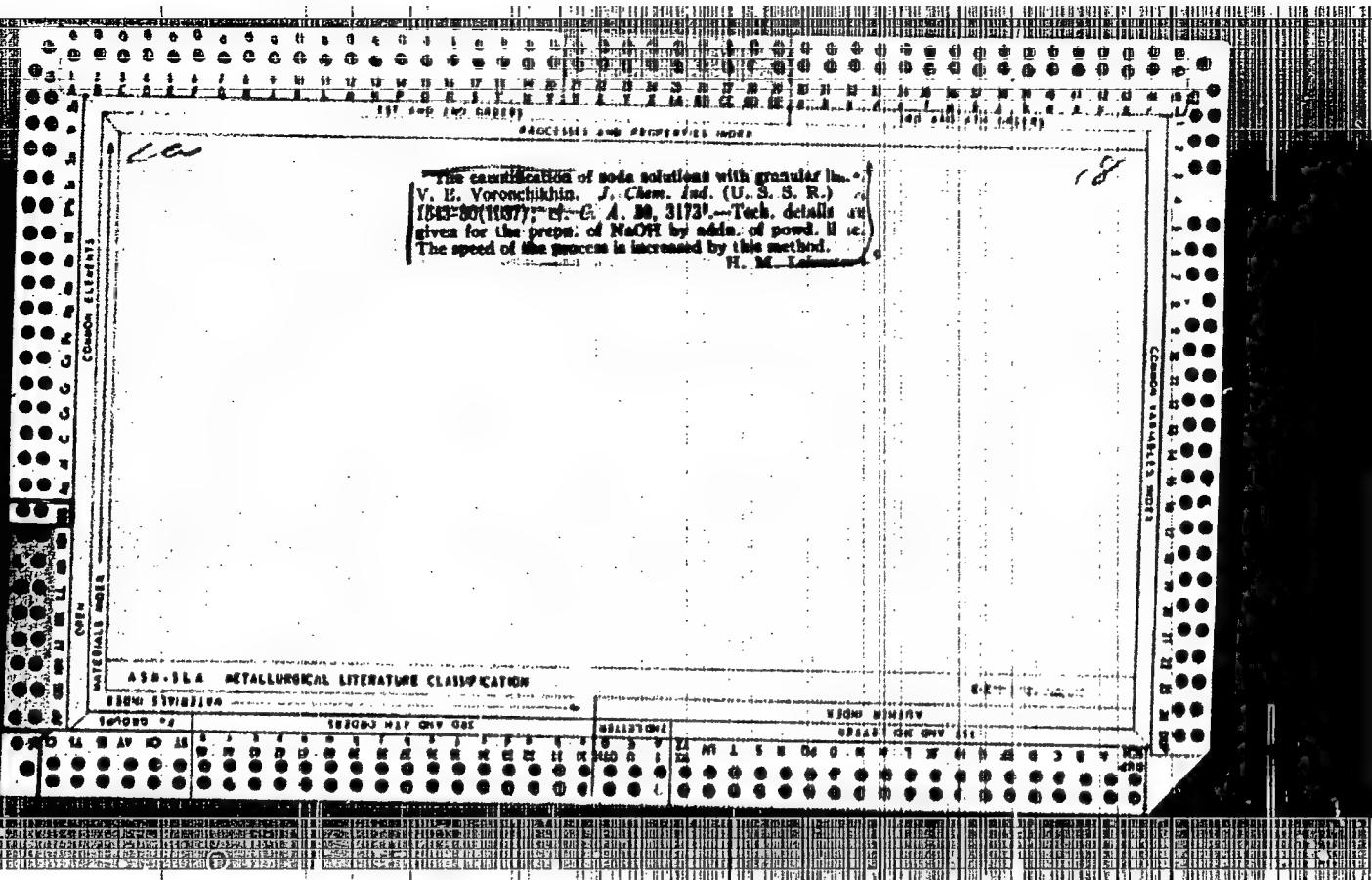
140000-14

SEARCHED INDEXED

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LITERATURE

#### **SUMMARY AND CONCLUSIONS**

The preparation of sodium hydroxide from soda solutions by granular lime. V. E. Voronchikhin and G. S. Plakhotnyuk. *J. Chem. Ind. (Moscow)* 1934, No. 10, 33-9.—When soda soaps are treated with  $\text{Ca}(\text{OH})_2$ , the  $\text{CaCO}_3$  formed takes too long to settle. Addn. of  $\text{FeCl}_3$  or starch to the soap, increases the rate of settling. Better results are obtained if granulated lime is added to the soda with mech. stirring. The best lime grains are prep'd. by trituration of slaked lime with strong soda ash, and allowing the paste to stand in a closed vessel. The mass soon becomes solid and can be easily broken up into small grains. H. M. Lester

H. M. Leibert

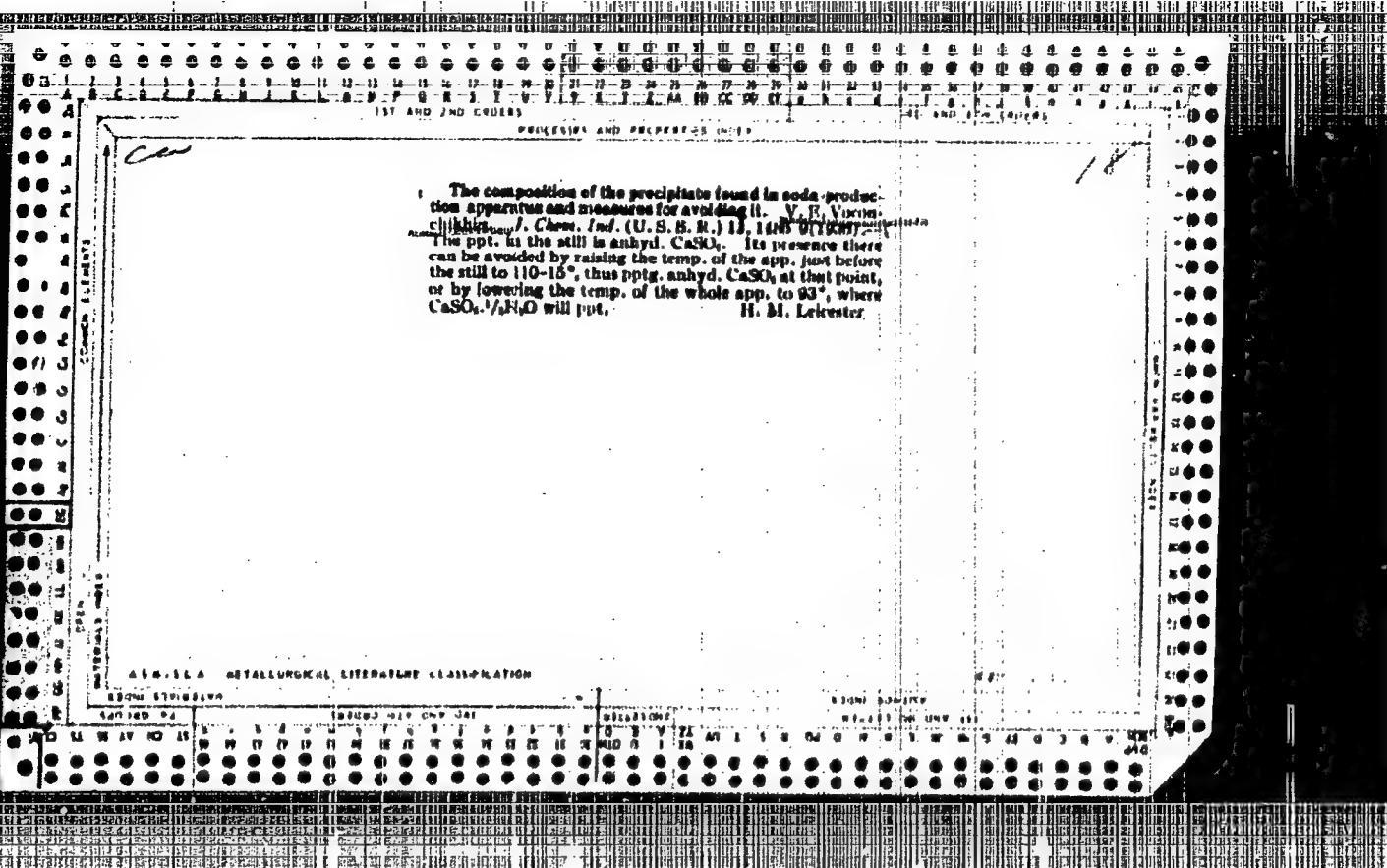
18

CA

#### **1.1.2.2. METALLURICAL LITERATURE CLASSIFICATION**

APPROVED FOR RELEASE: 03/20/2001

CTA-RDP86-00513R001860910005-1"



co  
The preparation of sodium hydroxide from soda ash-  
tion by granular lime. V. N. Veronchikhin. J. Chem.  
Ind. (Moscow) 13, 164 (1910); cf. Chem. Zentralbl.  
When 100% excess H<sub>2</sub>O is added rapidly to dolomitic  
lime, the Ca(OH)<sub>2</sub> product is dense and settles in the  
lime, at a moderate speed. If cold H<sub>2</sub>O is added rapidly,  
the Ca(OH)<sub>2</sub> is porous, but settles slowly. The best lime  
for the prep. of NaOH is obtained by slow addition of cold  
H<sub>2</sub>O. The Ca(OH)<sub>2</sub> which is formed is porous and settles  
rapidly. I. M. Leicester

ASMSLA METALLURGICAL LITERATURE CLASSIFICATION  
STANDARD SYSTEM

**Sodium bicarbonate.** V. E. Vorenkofskian. U.S.P. No. 65,854, Aug. 21, 1945. Cryst.  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$  is made in cascade in a vertical chamber provided with inclined shelves. Counter-current to the cascading crystals, it passes  $\text{CO}_2$  from its melt, with dry air preheated to 50°.  $\text{NaHCO}_3$  is formed and simultaneously dried. To prevent caking, the incoming  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$  is mixed with finely obtained  $\text{NaHCO}_3$ . M. Rose.

18

CA

#### **MEDICAL LITERATURE CLASSIFICATION**

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APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R001860910005-1"

SEARCHED		INDEXED		SERIALIZED		FILED	
PROCEDURE AND SELECTION USED							
<p>Repeated ignition of the limestone filings in the production of caustic. V. B. Voronchikhin. <i>J. Chem. Ind.</i> (U. S. S. R.) 17, No. 11, 208 (1940). When the <math>\text{CaCO}_3</math>, ppd., by treating <math>\text{Na}_2\text{CO}_3</math> with <math>\text{CaO}</math>, is ignited to <math>\text{CaO}</math>, which is used again, the quality of the <math>\text{CaO}</math> gradually falls off, and after 8-10 ignitions, it must be discarded. The <math>\text{CaCO}_3</math> from ignited <math>\text{CaO}</math> settles more rapidly from <math>\text{NaOH}</math> soln., but Al compds. tend to accumulate in the <math>\text{NaOH}</math>. H. M. Leclercq</p>							
SEARCHED	INDEXED	SERIALIZED	FILED	SEARCHED	INDEXED	SERIALIZED	FILED
MATERIALS RECEIVED		MATERIALS ISSUED		STOCK INVENTORY		STOCK INVENTORY	
ASA-SEA METALLURGICAL LITERATURE CLASSIFICATION							
SEARCHED	INDEXED	SERIALIZED	FILED	SEARCHED	INDEXED	SERIALIZED	FILED
SEARCHED		INDEXED		SERIALIZED		FILED	
SEARCHED INDEXED SERIALIZED FILED							



VORONCHIKHIN, V.G.; YUSHKOV, I.S.

Changing the design of the slag tank. Sbor. rats. predl.  
vnedr. v proizv. no.2:58-59 '61. (MIRA 14:7)

1. Lipetskiy metallurgicheskiy zavod "Svobodnyy Sokol".  
(Foundries--Equipment and supplies)

VORONCHIKHIN, V.M.

TITOV, B.M.; VORONCHIKHIN, V.M.

Centrifugal water pump. Gor. zhur. no. 9:74 S '57. (MERA 10:9)

1. Tomskiy politekhnicheskiy institut imeni S.M.Kirova.  
(Air compressors)

L 36276-65 EXP(d)/EXP(v)/EXP(E)/EXP(h)/EXP(l) 8/02/65/0110/0105/02105/0105  
ACCESSION NR: AP500231

AUTHOR: Voronchikhin, V. N.

TITLE: Automatic regulator for pump shaft rotation rate. Class 60, No. 115997

SOURCE: Byulleten' izobretensii i otkrytykh značkov, No. 1940, 10

TOPIC TAGS: pneumatic system, pump, shaft

ABSTRACT: This author's certificate presents an automatic regulator for the shaft rotation speed of a pump with a pneumatic drive. The pump consists of a balanced piston slide valve and an elastic diaphragm rigidly connected to it by a spring-loaded stem and placed in a closed chamber (see Fig. 1 on the Enclosure). To control the rotation rate of the pneumatic drive shaft, during the work of the pump, the chamber with the diaphragm is connected to the pressure line of the pump. Orig. art. has 1 figure.

ASSOCIATION: none  
SUBMITTED: 25 May 60

ENCL: 01

SUB COM: 15

NO REF SOV: 000

OTHER: 000

Card 1/1

COUNTRY : USSR  
CATEGORY : Cultivated Plants. Fruits. Berries. M.  
ABS. JOUR. : RZhBiol., No.23, 1958, No. 104864  
AUTHOR : Veronchikhina, A.  
INST. :  
TITLE : Plum Variety - Nagrada.  
  
ORIG. PUB. : Sad i ogorod, 1958, No. 5, 60  
ABSTRACT : No abstract.

CARD: 1/1

157

VINOKUROVA, Ye.A. [deceased]; VORONCHIKHINA, A.P.; RUTMAN, Sh.P. [deceased]

Investigating the coking capacity of Urgal and Suchan coals.  
Trudy DVFAN SSSR, Ser. khim. no.6:29-33 '62. (MIRA 17:8)

VORONCHIKHINA, A.P.

Determining the output of coke by-products from Urgal and  
Suchan coals. Trudy DVFAK SSSR, Ser. khim. no.6:39-43 '62.  
(MIRA 17:8)

USSR/Cultivated Plants - Fruits. Berries.

M-6

Abs Jour : Ref Zhur - Biol., No 7, 1958, 30039

Author : Voronchikhina, A.Ya.

Inst :

Title : A Valuable Plum Variety.

Orig Pub : Sad i ogorod, 1957, No 6, 46-48

Abstract : According to variety testing data gathered at the Voronezh Experimental Fruit and Berry Station, the best commercial plum variety for the Voronezhskaya Oblast' is the Kolkhoz Reine-Claude.

Card 1/1

VORONCHIKHINA, K.A.

Improving the processing of leather raw materials. Koshev.  
obuv. prom. 5 no.6:37-39 Je '63. (MIRA 16:6)

(Leather)

VORONCHIKHINA, M.G.; KEL'TSEV, N.V.; STAROVYTOVA, A.F.; KHALIF, A.L.

Obtaining solvents from casing-head gasolines. Trudy VNIIGAZ no.12:  
159-163 '61. (MIRA 15:1)  
(Gasoline) (Solvents)

TITOV, B.M., dotsent; VORONCHIKHIN, V.M., inzh.; TIMOFEEV, V.A.,  
inzh.; UDUT, V.S., inzh.

Some characteristic defects of compressor plants in Kuznetsk  
Basin mines. Izv.vys.ucheb.zav.; gor.zhur. 6 no. 12:132-140  
'63. (MIRA 17:5)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskly  
institut imeni S.M.Kirova.

MELIK-GAYKAZYAN, V.I.; BAYCHENKO, A.A.; VORONCHIKHINA, V.V.; LIVSHITS, G.L.;  
SOROKA, V.I.; RAYVICH, I.D.; KHARKHARDIN, P.P.

Emulsification of flotation oil reagents under industrial  
conditions and evaluation of the dispersion properties of the  
obtained emulsions. Koks i khim. no.3:9-13 '64. (MIRA 17:4)

1. Tomskiy politekhnicheskiy institut (for Voronchikhina).
2. Nikitovskaya ugleobogatitel'naya fabrika (for Rayvich).
3. Gorlovskiy koksokhimicheskiy zavod (for Kharkhardin).

MELIK-GAYKAZYAN, V.I.; BAYCHENKO, A.A.; VORONCHIKHINA, V.V.

Determining the parameters which characterize the flotation activity of oil reagents. Koks i khim. no.8:13-16 '62. (MIRA 17:2)

1. Tomskiy politekhnicheskiy institut.

VORONCHIKHINA, Z.N., Cand Agr Sci -- (diss) "Peculiarities of growth  
of the root system of gooseberry, and its interaction  
with above-ground organs under conditions of Moskovskaya  
Oblast." Mos, 1958, 16 pp (Mos Order of Lenin Agr  
Acad im K.A. Timiryazev) 110 copies (KL, 23-58, 109)

- 95 -

VORONCHUK, V.I.

Laryngeal cyst in a newborn infant. Vest.oto.-rin. 20 no.4:101-102  
(MERA 11:?)  
J1-Ag'58

1. Iz kafedry sudebnoy meditsiny (zav. - dots. K.Ye. Pirogova)  
Dnepropetrovskogo meditsinskogo instituta.

(LARYNX, cysts,  
in newborn inf. (Rus))  
(INFANTS, (NEWBORN)  
laryngeal cysts (Rus))

VORONCOV, Lev, inz.; SILHARD, Vladimir, inz.; JELENIC, Jernej, inz.;  
RANISAVLJEVIC, Toma, inz.; KLANCNIK, Mario, inz.

Main features and conclusion of the discussion, Kem ind 12  
no.4:254-263 Ap '69.

1. Savjetnik Jugoslavenskog gradevinskog centra, Beograd (for  
Voroncov). 2. Savjetnik i republicki gradevinaki inspektor SRH,  
Zagreb (for Silhard), 3. Sef projektantske grupe za hidrotehnicka  
radove montaznog poduzeca "Pobeda", Beograd (for Ranisavljevic).

VORONEL', A.V.

Equation for a melting curve. Zhur. tekhn. fiz. 28 no.11:2630-2634  
N '58. (MIRA 12:1)  
(Melting points) (Heat of fusion)

VORONEL', A.V., SNIGIREV, V.G., CHASHKIN, Yu.R.

Behavior of the heat capacity  $C_V$  of pure substances near the critical point. Zhur. eksp. i teor. fiz. 48 no.3:981-984 Mr '65. (MIRA 18:6)

1. Institut fiziko-tehnicheskikh i radiotekhnicheskikh izmereniy.

VORONEL', A.V.; GARBER, S.R.; SIMKINA, A.P.; CHARKINA, I.A.

Heat capacity of Gd near the Curie point. Zhur. eksp. i teor.  
fiz. 49 no.2:429-432 Ag '65. (MIRA 14:9)

1. Institut fiziko-tekhnicheskikh i radiotekhnicheskikh issledovaniy.

VORONEL', A. V.

5.1400

82006

S/120/60/000/03/049/055  
E073/E535

AUTHORS: Astov, D. N. and Voronel', A. V.

TITLE: A Bellows Type Regulation Valve for Operation at Pressures  
up to 150 atm ✓

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No 3, p 149

ABSTRACT: In an earlier paper (Ref 1), R. A. Alikhanov described the design of a valve of very low weight which permits continuous regulation of small quantity gas flows at pressures up to 4 atm. This valve has been modified by the authors of this paper to permit regulating gas flows with pressures up to 150 atm. This bellows type valve is of small dimensions and due to a special configuration of the needle the initial gas flow can be regulated between 0.03 and 0.05 cm<sup>3</sup>/min at normal pressure. Up to the maximum flow, which is 2 to 3 cm<sup>3</sup>/min, the flow rate can be regulated with an accuracy of 0.1 to 0.2 cm<sup>3</sup>/min for a pressure gradient of 150 atm. In the case of lower pressure gradients the accuracy of the regulation can be made higher. The valve was

Card 1/2 tested with hydrogen up to pressures of 150 atm. X

pa

82006  
S/120/60/000/03/049/055  
E073/E535

A Bellows Type Regulation Valve for Operation at Pressures up to 150 atm

Acknowledgments are expressed to R. A. Alikhanov and V. N. Kostryukov for commenting on the design of the individual components. There are 1 figure and 1 Soviet reference.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tehnicheskikh i radiotekhnicheskikh izmereniy  
(All Union Scientific Research Institute for Physics, Technology and Radio Engineering Measurements) X

SUBMITTED: April 2, 1959

Card 2/2

L 63961-65	ENT(a)/EFF(c)/EFF(n)-2/EFF(l)/EMP(b)	IUE	10
ACCESSION NR:	AP5008712	5/0036/05/1-3/003/098/0981	5/0036/05/1-3/003/098/0981
AUTHOR:	Voronov, A.; Snyshkin, V. G.; Chashkin, Yu. B.	5/0036/05/1-3/003/098/0981	5/0036/05/1-3/003/098/0981
TITLE:	The specific heat of pure substances close to the critical point	5/0036/05/1-3/003/098/0981	5/0036/05/1-3/003/098/0981
SOURCE:	Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 83, no. 3, 1965, 981-984	5/0036/05/1-3/003/098/0981	5/0036/05/1-3/003/098/0981
TOPIC TAGS:	argon, nitrogen, oxygen, specific heat measurement	5/0036/05/1-3/003/098/0981	5/0036/05/1-3/003/098/0981
ABSTRACT:	The specific heat of argon of critical density was measured very carefully in temperature intervals down to approximately 0.02K. Since there were considerable discrepancies in the literature on the critical density of argon, the measurements were made at several densities close to critical. The quantity of gas in the calorimeter was determined by weighing, and the measurement error is about 0.1%. Tables are given for densities of 0.533, 0.530 and 0.538 g/cm <sup>3</sup> . It was found that 0.533 g/cm <sup>3</sup> is closest to the critical density. Curves are given for curves for argon with density. The authors thank M. P. Solntsev, V. A. Popov, V. N. Snyshkin, Ikhna, and	5/0036/05/1-3/003/098/0981	5/0036/05/1-3/003/098/0981
Card 1/2			

L 63961-65											
ACCESSION NR: AP5003762											
V. G. Borbunova for help with the measurements." Orig. art.		S:		2 figures and		1 table					
ASSOCIATION: Institut fiziko-tehnicheskoi i radiotekhnicheskoi promst											
SUBMITTED: 28Dec64		ENCL: 00		SUB:	CODE: RRS	TO:	C:				
NO REP Sov: 003		OTHER: 002		ATT:		4071					
Card 2/2											

VORONEL', A.V.; GITERMAN, M.Sh.

Hydrostatic effect at the critical point in a binary mixture.

Zhur. eksp. i teor. fiz. 48 no.5:1433-1436. My. 65.

(CIA 13:7)

VORONEL', A.V.; CHASHKIN, Yu.R.; POPOV, V.A.; SIMKIN, V.G.

Measurement of the heat capacity  $C_V$  of oxygen near the critical point. Zhur. eksp. i teor. fiz. 45 no.3:828-830 S '63.  
(MIRA 16:10)

1. Institut fiziko-tehnicheskikh i radiotekhnicheskikh izmereniy.

(Oxygen—Thermal properties)

84426

S/056/60/039/004/044/048  
B006/B056

24.5400

AUTHORS: Voronel', A. V., Giterman, M. Sh.

TITLE: The Hydrostatic Effect Near the Critical Point of a LiquidPERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,  
Vol. 39, No. 4(10), pp. 1162 - 1163.

TEXT: Near the critical point of a pure substance, its compressibility increases to an unlimited extent; therefore, already a slight change of pressure, caused by the pressure of the upper layers of the liquid upon the lower ones, may be of essential importance. For this case, the authors theoretically investigated the curves of state  $p(V)$  and  $T(V)$ . The change in pressure with height is given by  $dp = (\mu g/V)dh$ , where  $V$  is the specific volume at the height  $h$ , and  $\mu$  is the molecular weight. If  $p$  and  $V$  deviate only little from the critical values, then, if  $T = T_c$ ,  $-dh/dV = (B/2\mu g)V(V-V_c)^2$  and  $V = V_c - \alpha(h-h_0)^{1/3}$  with  $\alpha = (6\mu g/BV_c)^{1/3}$ , where  $h_0$  denotes the integration constant which gives the height at which

Card 1/3

84126

The Hydrostatic Effect Near the Critical Point of a Liquid S/056/60/039/004/044/048  
B006/B056

the critical conditions are satisfied;  $B = (\partial^3 p / \partial V^3)_T$ . The mean specific volume in the entire vessel is experimentally measurable, and so is the pressure at a certain level. If  $p_c$  predominates at  $h=0$ , one obtains

$V_{\text{mean}} = \frac{1}{H} \int_0^H V(h) dh = V_c - \frac{3}{4H} [(H-h_o)^{4/3} - h_o^{4/3}]$ . A numerical estimate shows that for all substances at  $0 < h_o < H$  and  $H \sim 10$  cm,  $(p_o - p_c)/p_o \sim 10^{-4} - 10^{-5}$ , i.e.,  $p_o$  may be put equal to  $p_c$ . As  $B$  is very small,  $V_{\text{mean}}$  may be expected to deviate considerably from  $V_c$  at  $p_o \approx p_c$ .  $|V_{\text{mean}} - V_c|$  attains its maximum value at  $h_o = 0$  and  $h_o = H$ . In the case of coexistence of liquid and vapor, the  $p(V)$  and  $T(V)$  curves, respectively, show a straight part of the width  $\Delta = \frac{3}{2} (6\mu gH/BV_c)^{1/3}$ . This curve is, besides the ordinary curve, shown in a diagram. Such a shape has actually been observed in the case of xenon, ethane, and ethylene. For xenon, the ratio of the vessel

Card 2/3

84426

The Hydrostatic Effect Near the Critical Point of a Liquid

S/056/60/039/004/044/048  
B006/B056

heights in two experiments was  $H_1/H_2 = 19 \text{ cm}/13 \text{ cm} = 1.46$  and  $(\Delta_1/\Delta_2)^3 = 1.57$ , and for ethylene  $H_1/H_2 = 2.5$  and  $(\Delta_1/\Delta_2)^3 = 2.56$ ; these data agree well with the formula for  $\Delta$ . From an experimental determination of  $\Delta$  it is possible to determine  $B$  from this formula. Thus one obtains for xenon, if  $H = 19 \text{ cm}$ ,  $\Delta = 0.20 \text{ g.cm}^{-3}$ ,  $B \approx 4 \cdot 10^{-5} \text{ atm/cm}^9$ . The authors thank M. Ya. Azbel' for discussions. There are 1 figure and 5 references: 2 Soviet and 3 Canadian.

ASSOCIATION: Institut fiziko-tehnicheskikh i radiotekhnicheskikh izmereniy (Institute of Physics, Technology, and Radio Engineering Measurements).

SUBMITTED: July 26, 1960

X

Card 3/3

VORONEL', A.V.

Heat capacity of xenon near the critical point and the value  $\left(\frac{\partial^3 n}{\partial V^3}\right) T_k'$   
Zhur. fiz. khim. 35 no. 4:958-959 Ap '61.  
(MIRA 14:5)  
(Xenon—Thermal properties)

AID Nr. 991-6 17 June

MINIATURE RESISTANCE THERMOMETER (USSR)

Voronej, A. V., and V. V. Sichekochikhina. Pribory i tekhnika eksperimenta, no. 2, 1963, 181-182.

S/120/63/000/002/041/041

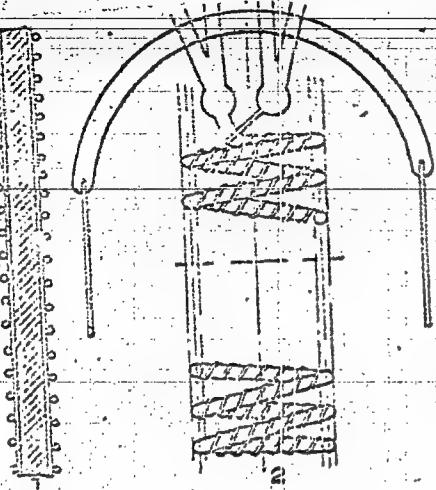
The All-Union Scientific Research Institute for Physicotechnical and Radio Engineering Measurements has developed a frameless platinum resistance thermometer which is greatly reduced in size and in weight. The sensing

Card 1/3

AID Nr. 991-6 17 June

MINIATURE RESISTANCE THERMOMETER (Cont'd)

S/120/63/010/008/011/041



- 1 - insulated core;
- 2 - sensing element assembly

element [see illustration] is an annealed platinum wire 0.05 mm in diameter wound with 0.1 pitch on a helical platinum core 0.2 to 0.3 mm in diameter. The core is insulated with a thin film. There is no thermal stress, because the core and the winding are made of the same material. The specific heat of the thermometer is a function of the properties of the insulating film. The thermometer is sealed in a copper housing filled with dry helium (10 to 150 mm Hg). A variant designed and tested at the Institute had a core insulated with a E-2 glue film polymerized for several hours at 140°C. The thermometer was 11 mm in length and 4 mm in diameter, weighed ~ 0.5 g.

Card 2/3

AID No. 991-6 17 June

MINIATURE RESISTANCE THERMOMETER [Cont'd]

8/120/63/x10/002/0.1/0.1/

and had a resistance at the triple point of water of  $R_0 = 32,630$  ohm. It was periodically cooled by liquid nitrogen at  $-195^{\circ}\text{C}$  and heated by water at  $+100^{\circ}\text{C}$  for two months. After one week a stable resistance with an accuracy of  $\pm (5-10) \cdot 10^{-4}$  ohms was established, which corresponds to a temperature of 0.003 to 0.005°C. The dimensions of the thermometer could be further reduced and its stability improved by using improved heat-resistant materials for core insulation. The frameless design of the thermometer permits a wide variation in shape.

[AS]

Card 3/3

AZBEL', M.Ya.; VORONEL', A.V.; GITERMAN, M.Sh.

Theory of the critical point. Zhur. eksp. i teor. fiz. 46  
no.2:673-676 F '64. (MIRA 17:9)

1. Institut fiziko-tehnicheskikh i radiotekhnicheskikh izmereniy.

DP 00061501080624351147

Author: V. A. M. Tikhonov, Yu. S. Peregudov

TITLE: Hydrostatic effect on the resistance of ships. II  
Source: Trudy Akademii Nauk SSSR, Ser. Tekhnicheskaya, No. 48, Iss. 5, 1965

Card 46

Card 2/2

39500

S/056/62/043/002/051/053  
B108/B102

5.4800

AUTHORS: Bagatskiy, M. I., Voronel', A. V., Gusak, V. G.

TITLE: Measurement of the specific heat  $C_v$  of argon near its critical point

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,  
no. 2(8), 1962, 728-729

TEXT: The dependence of the specific heat of argon on the temperature near the critical point was studied with the aid of a technique developed by A. V. Voronel' and P. G. Strelkov (PTE, 6, 111, 1960). Near the critical point (transition from the two-phase system liquid-vapor into a homogeneous system) at a density of  $0.521 \text{ g/cm}^3$ ,  $C_v$  tends to infinity.

The limit of the difference between the specific heats of the heterogeneous and homogeneous phases can be regarded as a jump in specific heat. It amounts to 20 cal/mole.deg. The jump occurred at  $150.5^\circ\text{K}$  (critical temperature  $150.7^\circ\text{K}$ ). There are 2 figures.

Card 1/2

Measurement of the specific heat  $C_v$  ... S/056/62/043/002/051/053  
B108/B102

ASSOCIATION: Nauchno-issledovatel'skiy institut fiziko-tehnicheskikh  
i radiotekhnicheskikh izmereniy (Scientific Research  
Institute of Physicotechnical and Radiotechnical  
Measurements)

SUBMITTED: June 1, 1962

Card 2/2

L 28074-66 EWT(m)/ETC(m)-6 RM/WW/JW

ACC NR: AP6014028

SOURCE CODE: UR/0056/56/050/004/0897/0904

AUTHOR: Voronel', A. V.; Gorbunova, V. O.; Chashkin, Yu. R.;  
Shchekochikhina, V. V.58  
56  
BORG: All-Union Institute of Physicotechnical and Radiotechnical  
Measurements (Vsesoyuznyy institut fiziko-tehnicheskikh i radio-  
tekhnicheskikh izmereniy)

TITLE: Specific heat of nitrogen near the critical point

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50,  
no. 4, 1966, 897-904TOPIC TAGS: nitrogen, specific heat, critical point, temperature  
dependence, thermogram

ABSTRACT: In connection with the discussion concerning the analytic form of the specific heat singularity near the critical point (M. E. Fisher, Phys. Rev., 136, A1599, 1964; M. E. Fisher, J. of Mathem. Phys., 5, 944, 1964), certain measurement results of the specific heat of nitrogen near the critical point are presented for an extended temperature range within 0.01C of  $T_c$ . The experimental errors are less than 5%. The data obtained indicate a logarithmic

Card 1/2

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ACC NR. AP6014028

2

dependence of the specific heat on temperature for  $T \rightarrow T_c$  and  $T < T_c$ ; the slopes of curves are the same from the left and right, that is, for  $T > T_c$  and  $T < T_c$ , and the finite change  $\Delta C_V = \lim (C_V^+ - C_V^-)$  for  $1T \rightarrow T_c 1 \rightarrow 0$  remains the same, in agreement with an earlier work M. Ya. Azbel, A. V. Voronel', M. Sh. Giterman, ZhETF, 46, 673, 1963). Since the value of the  $T_c$  is important for interpreting the results, its value has been determined with an accuracy of 0.001°C by a method similar to the thermographic one. In this connection it has been found that by using the results of a previous paper (Yu. R. Chashkin, V. G. Gorbunova, A. V. Voronel', ZhETF, 49, 433, 1965), the total amount of impurities in the gas can be determined with greater reliability accurate to 0.02%. The authors thank V. Vaks and A. Larkin for discussing certain problems. Orig. art. has: 6 figures, 2 formulas, and 1 table. [Based on authors' abstract]

[NT]

SUB CODE: 20 /

SUBM DATE: 03Nov65/ ORIG REF: 009/  
OTH REF: 010Card 2  
1/2 CU

AUTHOR: Voronel', A.V.

S/126/60/009/02/003/053  
E111/E335

TITLE: Contribution on a Thermodynamic Scale for High Pressures

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 2,  
pp 174 - 177 (USSR)

ABSTRACT: The author points out that pairs of substances can be found whose melting-point curves cross on the pressure-temperature plane (at the intersection both melt at the same temperature and pressure). The figure shows such curves for tin, phosphorus, carbon tetrachloride, silicon tetrachloride, phenol, chloroform and argon. The pressure in an apparatus where melting of two substances occurs simultaneously could thus be considered as a reference pressure to which a value obtained by calculation from the melting-point curve equations could be assigned. For this the author recommends one of his forms (Ref 2) of Simon's equation. This has a constant whose physical significance is clear from Salter's (Ref 3) work. He shows an arrangement of the equation from which all required parameters and pressure values can be found by

Card1/2

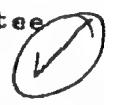


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P111/E235

Contribution on a Thermodynamic Scale for High Pressures

successive approximations from measurements of temperature (not pressure directly). The validity of the method depends on the applicability of Simon's equation, which is wide; it does not depend on possible variations of the constant of this equation along the melting-point curve and this variation can be studied by choosing a number of triangles shown in the figure. There are 1 figure and 9 references, 6 of which are Soviet and 3 English.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut Komiteta standartov, mer i izmeritel'nykh priborov (All-Union Scientific Research Institute of the Committee for Standards, Measurements and Measuring Instruments) 

SUBMITTED: July 21, 1959

Card 2/2

BAGATSKIY, M.I.; VORONEL', A.V.; GUSAK, V.G.

Measurement of the heat capacity  $C_V$  of argon in the immediate vicinity of the critical point. Zhur. eksp. i teor. fiz. 43 no.2: 728-729 Ag '62. (MIRA 16:6)

1. Nauchno-issledovatel'skiy institut fiziko-tehnicheskikh i radiotekhnicheskikh izmereniy.

(Argon--Thermal properties)

VORONEL', A.V.; STRELKOV, P.G.

Method for measuring the heat capacities of condensed gases above  
their boiling point. Prib. i tekhn. eksp. no.6:111-112 M-I '60.  
(MIR 13:12)

1. Nauchno-issledovatel'skiy institut fiziko-tehnicheskikh i  
radiotekhnicheskikh izmereniy.  
(Heat capacity) (Gases, Compressed)

ACCESSION NR: AP4019235

S/0056/64/046/002/0673/0676

AUTHOR: Azbel', M. Ya.; Voronel', A. V.; Giterman, M. Sh.

TITLE: Contribution to the theory of the critical point

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 673-676

TOPIC TAGS: critical point, free energy, equation of state, co-existence curve, phase equilibrium, free energy, specific heat, singularity, critical volume

ABSTRACT: In view of the discrepancy with ordinary theory displayed by the experimental results of the VNIIIFTRI Thermodynamics Laboratory (M. I. Bagatskiy, A. V. Voronel', V. G. Gusak, ZhETF, v. 43, 728, 1962; A. V. Voronel', Yu. R. Chashkin, V. A. Popov, V. G. Simkin, ZhETF, 45, 828, 1963), where a logarithmic singularity was observed for the temperature dependence of the specific heat  $\text{C}_V$  near the critical volume, the authors propose a new theory in which the form of the free energy near the critical point agrees with these experimental data. In both the existing and modified theories the order of the smallest nonvanishing derivative of the pressure with respect to the volume at the critical point determines

card 1/2

ACCESSION NR: AP4019235

uniquely the form of the phase-equilibrium point near the critical point, namely proportionality of the relative temperature to the relative volume squared. Several ways of checking the consequences due to the presence of the singularity at the critical point will be treated in a future article. Orig. art. has: 6 formulas.

ASSOCIATION: Institut fiziko-tehnicheskikh i radiotekhnicheskikh izmereniy (Institute of Physicotechnical and Radio Technical Measurements)

SUBMITTED: 12Jul63 DATE ACQ: 27Mar64 ENCL; 00

SUB CODE: PH NO REP Sov: 004 OTHER: 001

Card 2/2

VORONEL', A.V.; GITERMAN, M.Sh.

Hydrostatic effect near the critical point of a liquid. Zhur.  
eksp. i teor. fiz. 39 no.4:1162-1163 O '60. (MIRA 13:11)

1. Institut fiziko-tehnicheskikh i radiotekhnicheskikh izmereniy.  
(Liquids) (Phase rule and equilibrium)

VORONEL', A.V.

Reduced melting points of the elements considered as a periodic function of the atomic numbers. Zhur. fiz. khim. 31 no. 5:1177-1178 My '57. (MIRA 10:11)

1. Moskovskiy gosudarstvennyy pedinstitut.  
(Melting points) (Periodic law)